

# The founding of the American Institute of Physics

Karl T. Compton

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# *the founding of the* AMERICAN INSTITUTE OF PHYSICS

The following talk was presented at the Banquet of the American Institute of Physics and the Member Societies in Chicago on October 25, 1951. Senator Brien McMahon, chairman of the Joint Congressional Committee on Atomic Energy, also addressed the gathering.

By *Karl T. Compton*

FIRST may I add my greeting to Senator McMahon, and add my appreciation of his willingness to meet with us tonight. He and we have a strong bond in common. We physicists have been largely responsible for creating the activity for whose wise handling in the national interest he has so great a responsibility. And may I say, on the basis of several opportunities to see him in the discharge of these responsibilities, that we are very fortunate in having this aspect of our common interest in the hands of a man who has shown such real understanding of the basic conditions for scientific development and for advantageous application of the great potentialities of atomic energy.

Next let me try to give a bit of historical perspective to my reminiscences about the formation of the American Institute of Physics. This is its 20th anniversary, and 1931 was a milestone. There was another milestone, definite in character though not sharply defined as to date, about twenty years before that. This was the time when it was beginning to be respectable and effective for physicists to stay in the United States for their postgraduate study instead of going to Europe. During the ensuing two decades, physics grew rapidly, being part and parcel of the new development of postgraduate schools in this country, being stimulated by the teamwork of groups assembled for tackling some of the technical problems of World War I, and being greatly advanced by the program of National Research Fellowships supported by the Rockefeller Foundation shortly after the war.

But, in spite of this rapid development of physics during the "teens" and the "twenties", the general public was not very aware of this growing profession,

soon destined to be of such earth-shaking significance, in both the figurative and the literal sense. For example, in the edition of Webster's New International Dictionary, published four years after the establishment of the American Institute of Physics, the preferred definition of a physicist was "One versed in medicine". The average citizen would associate the words physics and physical scientist with certain intestinal disorders or with gymnasium drill. In certain states, where some kind of registration of employees was required, the profession of physics was not recognized, and physicists had to register as either engineers or chemists, which some of them felt to be rather humiliating.

With this background of vigorous growth of this young, and then inadequately recognized, profession, let me proceed with the story of the organization of the American Institute of Physics.

WHEN Dr. Klopsteg asked me some months ago to give some reminiscences covering the establishment of the American Institute of Physics, I at first hesitated because of an impairment of my vocal apparatus. But I accepted because this Institute represents a momentous achievement in the development of organized physics in this country; and also because I owe a very great personal debt to the American Physical Society and the other societies associated with it in the Institute.

In 1909, just sixteen years after the establishment of *The Physical Review*, I submitted for publication my first piece of research, which was my master's thesis at the college of Wooster in Ohio. The college

Karl T. Compton, chairman of the corporation of the Massachusetts Institute of Technology, served as the AIP's first chairman from 1931 to 1936. A past president of the American Physical Society, Dr. Compton has held numerous positions of importance in industry, the government, educational institutions and foundations, and professional organizations.



To tackle the financial problem, the Council of the American Physical Society in the latter half of the 1920's appointed a Committee on the Financial Status of *The Physical Review*. The problem confronting this committee, of which I was a member, was not only financial, but also involved the great delay in publication caused by the accumulation of manuscripts, which the Society could not afford to publish promptly. To meet this situation, several steps were taken, including: a more rigid editorial policy, an increase in the annual dues of members, and introduction of the "per page charge to authors".

When this "per page charge" plan was put into effect, it was quickly accepted by some organizations but not by others. Very generously at this point our fellow member, Dr. Alfred L. Loomis, stepped into the breach and undertook for an introductory period personally to take care of the "per page charge" for institutions which reported themselves unable to meet the charge. Gradually, however, the plan gained general acceptance and is now a regular part of the financial basis of our physics publications, and has subsequently been adopted by other scientific organizations.

at that time did not subscribe to *The Physical Review*, and I had no background of information regarding the proper form and length of a scientific article for such a journal. I consequently shipped the manuscript of my thesis on to Professor Merritt, who was then editor of *The Physical Review*—without realizing that its two hundred typewritten pages and numerous photographs would have constituted an article many times too long for publication, even in those days when editorial policy was far less strict than at present. In spite of the inappropriate length and character of this manuscript, I received from Professor Merritt a long letter giving detailed suggestions for rewriting the material. I tried a second time, and again Professor Merritt wrote back, saying that he felt the material had now been condensed to the point at which certain parts were not clear and again making suggestions for another revision; and this time the article was published.

I have often thought that this extraordinary help given by a great physicist to an unknown student in a small college, and involving on his part a great deal of work, was a splendid illustration of the helpful concern of the pioneers in scientific education in this country to encourage the development of their successors. Certainly, for me, it was both an inspiration and a lesson. Since that time I have always felt that any service which I could render to *The Physical Review* and to the profession of physics was an obligation as well as a pleasure.

During the decade following World War I, the rapid increase of research in the field of physics led to financial difficulties for *The Physical Review*.

**D**URING that same period, in the late 1920's, another problem presented itself to the American Physical Society. This was the emergence of groups of physicists who felt that the main current of interest in the American Physical Society was not meeting their particular professional requirements. These groups undertook to establish new societies and new publications devoted to their important and special interests. Consequently, the American Physical Society was concerned over the centrifugal tendency to separate the basic science of physics into a number of independent groups. Very naturally, each of these groups had its own financial problems of publication.

My own attention was first drawn to the possibility of a better coordination of the various physics groups by a conversation which I had with Mr. William Buffum who was at that time the executive officer of the Chemical Foundation. I had gone to him for financial help for *The Physical Review*. He told me that he had also been approached by various other physics groups and it was his impression that the whole profession of physics was running away in different directions by independent groups without much coordination. He said that the Chemical Foundation did not feel that it would be a wise expenditure of its funds to support the separate groups, but that if some way could be found to bring them together in some sort of coordinated program, then he felt that the Foundation would be very much interested in helping to establish such a program.

From this point on, my recollection of events is very much amplified by excerpts from the records of

the Council of the American Physical Society, which Karl K. Darrow very kindly dug out for me from the record books.

The first mention in the minutes of the Council of the American Physical Society of some official move toward coordination of the various activities in physics was taken on a motion of Professor G. W. Stewart at the Chicago meeting on 29 November 1929. On his motion the Council voted that a committee of three be appointed "with the President of the Society (H. G. Gale) as Chairman, which shall, after conference with the officers of the Optical Society of America, the Acoustical Society of America, and any other physics societies, recommend a plan of merger of these societies with the American Physical Society, and which shall present a preliminary report for discussion by the Council at the Des Moines meeting," in the following December. This committee consisted, in addition to President Gale, of G. W. Stewart, H. E. Ives, and D. C. Miller.

From this time on, until the actual establishment of the American Institute of Physics two years later, the problem of coordination of the various physics groups was a matter of discussion and report at every Council meeting.

The Council, at its April 1930 meeting in Washington, appointed a Committee on Applied Physics under the chairmanship of Dr. Paul D. Foote and comprising also L. A. Jones, A. W. Hull, H. E. Ives, L. O. Grondahl, K. T. Compton, George B. Pegram, and Henry G. Gale.

This committee made its first formal report to the Council of the Society at the meeting in November 1930, and I quote from its report, as follows:

"Dissatisfaction exists on the part of many physicists who feel that the activity of the American Physical Society is mainly confined to quantum physics and is not representative of physics in its broadest scope. This feeling is quite general, and whether justified or not, has been definitely evidenced by the formation of such organizations as the Optical Society, the Acoustical Society, the Rheology Society, and others. It is also evidenced by the contemplated formation of a society of Applied Physics and another society of Applied Mathematics, the latter being sponsored mainly by mathematical physicists. The feeling is still further evidenced by the fact that numerous papers dealing with pure and applied physics are not even submitted for the consideration of *The Physical Review* but are published in various chemical, engineering, photographic and geological journals. This state of affairs is a serious reflection upon the limited activity of the Physical Society in the general field of physics."

The Committee then went on to recommend a general organization, somewhat similar to that of the American Chemical Society, and that this organization should be started by the formation of two special divisions of the American Physical Society: one devoted to applied physics, and the other to mathematical physics. Each of these divisions should be, more

or less, self-governing, somewhat according to the scheme of organization adopted by the various sections of the American Association for the Advancement of Science.

It was pointed out that this proposal would be in the nature of an experiment. The report went on to say: "If the developments under such action are successful, with a liberal policy of supervision and control, it is not improbable that the organization can be extended to include the groups which have already withdrawn from the Society." The report further suggested that such a federated organization would make it possible to establish a central business office and an administrative force which could serve all of the group. It also pointed out that funds for the advancement of physics would be more readily procurable because of better central and efficient business management.

**T**HE FIRST MENTION of an Institute of Physics appears in the minutes of the Council of the American Physical Society on 29 December 1930, where several actions were taken to implement the preceding recommendations. One of these actions was to approve the establishment of a journal of applied physics. Another was to approve in principle the formation of sections within the Society and to encourage the affiliation of local physics clubs. Finally, and most importantly, the Council voted to propose the formation of an Institute of Physics for the purpose of coordinating various societies whose interests are primarily in the field of physics and for the purpose of supporting their publications.

As I recall it, the suggestion for an American Institute of Physics was first made by Dr. Foote, and the idea immediately took hold as a constructive method of dealing with the various complexities which I have just described. The proposal was submitted to the American Physical Society at its business meeting on the following day, and it was there approved.

The next steps were taken at the Council meeting of the American Physical Society in February, 1931, at which time a Joint Committee on the Proposed American Institute of Physics was established. This committee consisted of Messrs. Jones, Richtmyer, and Foote from the Optical Society of America; Fletcher, Arnold, and Saunders from the Acoustical Society; and Tate, Pegram, and Compton from the American Physical Society.

This joint committee promptly recommended several steps which were approved by the organizations concerned. These include the following:

That the American Physical Society, the Optical Society of America, and the Acoustical Society of America cooperate in establishing the American Institute of Physics as an agency for studying the common problems of the organizations representing physics in America and for undertaking thereafter such functions as the cooperating societies may assign to it.

That each of the cooperating societies designate

three members to constitute with the others so designated the Governing Board of the American Institute of Physics.

That a full-time Executive Secretary be appointed by the Board.

That the Institute through its Board and its Executive Secretary undertake, in such order as may be deemed best by the Board, the study of the following subjects with a view to making proposals to the cooperating societies as to functions of the Institute:

- (a) Publication problems and the possibility of benefits to be derived from cooperation or unification of effort in the business of publication.
- (b) Possibilities and procedures for increasing income from subscriptions, advertising, and other sources of support.
- (c) Suitable publicity for meetings and contacts with the press.
- (d) Relations and contacts of the Institute with local groups interested in physics.

That the Board investigate the possibility of developing an international management for *Science Abstracts A*, with change of name to one more descriptive, and with improvement as to indexing and completeness.

That the Board consider the development of appropriate relations with other national societies which may or may not wish to become societies cooperating with this Institute, such as the Society of Rheology, the Meteorological Society, the Association of Physics Teachers, and others.

At the next Council meeting on the 10th of September, 1931, I reported, as Chairman of this Joint Committee, that Dr. Henry A. Barton had been elected Director of the Institute of Physics and Dr. John T. Tate had been appointed Adviser on Publications. I also reported the favorable action for affiliation by other physics groups and that the Chemical Foundation had given informal assurance that it was ready to spare no expense in furthering the interests of the Institute.

Thus was the American Institute of Physics established, and at a Council meeting on the 28th of December, 1931, I reported to the Council that there was no further need of this Joint Committee since its whole purpose had been achieved in the formation of the Institute. Dr. Darrow in his recent letter to me states very generously in this connection that "the committee was thereupon dissolved with honor. I think that no other committee in the history of the Society can have made so momentous an achievement."

From this point on, you all know the record of this new organization. It has served well during the past two decades in which the profession of physics has grown enormously both in numbers and in accomplishment. I think it has well solved the problem of co-ordination of the various important fields of physics, while at the same time giving free scope for initiative and freedom in the development of various aspects

of the subject. It greatly alleviated the financial problem of publication, although I understand that this problem has again caught up with us because of the greatly increased amount of important material to be published and the increasing costs of publication.

**I**N CONCLUSION, I would like, for the record, to pay tribute to several individuals and organizations among the very large number who have contributed to the successful development of this enterprise.

I would pay a special tribute to our late colleague, Dr. John T. Tate, who, as Adviser on Publications, was principally responsible for the plan of uniform format and centralized editorial work which promoted economy and efficiency in publication. I would pay special tribute to Dr. Paul D. Foote, who so effectively guided the work of the Committee on Applied Physics, which was so largely responsible for the solution of this problem. The record would be notably deficient without recognition of the statesmanlike contributions of George Pegram in every stage of this program. His knowledge of organization, law, and finance, backed up by judgment and devoted interest, has been invaluable.

We owe a great deal to the Division of Natural Sciences of the Rockefeller Foundation, which helped us substantially to develop this program of scientific publication—a type of problem which was coming to the Rockefeller Foundation from many quarters—and I know that the Foundation took a great deal of satisfaction in having been able to assist in the development of this type of solution.

The Chemical Foundation helped out very substantially in providing the first quarters to be occupied by the Institute, and in underwriting a portion of the overhead in its early operations.

Special recognition also should be given to those physicists and friends of physics who contributed so generously to make possible the purchase of the fine headquarters building for the American Institute of Physics in New York. This building has not only provided operating facilities for editorial and other activities but has been a central gathering place for physicists of all categories, and it has also contributed space for some of the work of the United Nations and other good causes.

The Institute was especially fortunate in the selection of Dr. Henry A. Barton as its director, and we are all greatly indebted to him and to his loyal staff for the effective manner in which he has carried on the executive responsibilities of this organization and for the effective, yet very modest, way in which he has represented the interests of American physics in various national bodies.

I could go on to mention many others, but perhaps it can all be summed up by saying that each and all of those who have contributed to the development and operation of the American Institute of Physics have been but performing generously and effectively their professional duty.